

BS EN ISO 5579:2013



BSI Standards Publication

**Non-destructive testing  
— Radiographic testing of  
metallic materials using film  
and X- or gamma rays — Basic  
rules (ISO 5579:2013)**

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**National foreword**

This British Standard is the UK implementation of EN ISO 5579:2013. It supersedes BS EN 444:1994 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee WEE/46, Non-destructive testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

## Non-destructive testing - Radiographic testing of metallic materials using film and X- or gamma rays - Basic rules (ISO 5579:2013)

Essais non destructifs - Contrôle radiographique des matériaux métalliques au moyen de film et de rayons X et gamma - Règles de base (ISO 5579:2013)

Zerstörungsfreie Prüfung - Durchstrahlungsprüfung von metallischen Werkstoffen mit Film und Röntgen- oder Gammastrahlen - Grundlagen (ISO 5579:2013)

This European Standard was approved by CEN on 16 November 2013.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Foreword

The text of ISO 5579:2013 has been prepared by Technical Committee ISO/TC 135 “Non-destructive testing” of the International Organisation for Standardization (ISO) and has been taken over as EN ISO 5579:2013 by Technical Committee CEN/TC 138 “Non-destructive testing” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2014, and conflicting national standards shall be withdrawn at the latest by June 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 444:1994.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 5579:2013 has been approved by CEN as EN ISO 5579:2013 without any modification.

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the rules given in the ISO/IEC Directives, Part 2. [www.iso.org/directives](http://www.iso.org/directives)

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. [www.iso.org/patents](http://www.iso.org/patents)

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

The committee responsible for this document is ISO/TC 135, *Non-destructive testing*, Subcommittee SC 5, *Radiation methods*.

This third edition cancels and replaces the second edition (ISO 5579:1998), which has been technically revised.

Changes from the second edition include:

- introduction of film in the title — this International Standard is valid only for NDT films as image detectors and not for digital radiographic detectors;
- reference to the state-of-the-art image quality detectors, according to ISO 19232-1 to ISO 19232-4;
- omission of figures with test arrangements (these test arrangements are described in the corresponding application standards);
- extension of applicable X-ray voltages from 500 kV up to max. 1 000 kV, depending on the penetrated wall thickness and material;
- modification of the nomogram of minimum source distances for focal spot sizes from 0,1 mm up to 8 mm;
- update of film system classes (old ISO classes T2 and T3 have been replaced by new classes C3 to C5, according to ISO 11699-1:2008);
- several editorial changes.

## Introduction

This International Standard specifies fundamental techniques of radiography, with the object of enabling satisfactory and repeatable results to be obtained economically. The techniques are based on generally accepted practice and the fundamental theory of the subject.

Standards relating to specific applications should conform to these basic rules.





# Non-destructive testing — Radiographic testing of metallic materials using film and X- or gamma rays — Basic rules

## 1 Scope

This International Standard outlines the general rules for industrial X- and gamma-radiography for flaw-detection purposes, using film techniques, applicable to the inspection of metallic products and materials.

It does not lay down acceptance criteria of the imperfections.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5576, *Non-destructive testing — Industrial X-ray and gamma-ray radiology — Vocabulary*

ISO 5580, *Non-destructive testing — Industrial radiographic illuminators — Minimum requirements*

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 11699-1, *Non-destructive testing — Industrial radiographic film — Part 1: Classification of film systems for industrial radiography*

ISO 11699-2, *Non-destructive testing — Industrial radiographic films — Part 2: Control of film processing by means of reference values*

ISO 19232-1, *Non-destructive testing — Image quality of radiographs — Part 1: Determination of the image quality value using wire-type image quality indicators*

ISO 19232-2, *Non-destructive testing — Image quality of radiographs — Part 2: Determination of the image quality value using step/hole-type image quality indicators*

ISO 19232-3, *Non-destructive testing — Image quality of radiographs — Part 3: Image quality classes*

ISO 19232-4, *Non-destructive testing — Image quality of radiographs — Part 4: Experimental evaluation of image quality values and image quality tables*

EN 12543 (all parts), *Non-destructive testing — Characteristics of focal spots in industrial X-ray systems for use in non-destructive testing — Part 2: Pinhole camera radiographic method*

EN 12679, *Non-destructive testing — Determination of the size of industrial radiographic sources — Radiographic method*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 5576 and the following apply.

### 3.1

#### **nominal thickness**

*t*

nominal thickness of the material in the region under examination

Note 1 to entry: Manufacturing tolerances do not have to be taken into account.